

REMARKS

35 U.S.C. § 103(a)

The Office Action rejects claims 1, 3-6 and 9-11 under 35 U.S.C. § 103(a) as being unpatentable over Hansen USPN 3374266 in view of Rubin USPN 3943969. The Examiner indicated claims 2, 7 and 8 as allowable. Applicant appreciates the Examiner's indication of allowance of claims 2, 7 and 8. **Claims 2 and 7** have been rewritten to include the limitations of the base claims and the intervening subject matter. **Claim 8** depends upon allowable amended claim 7. The applicant respectfully suggests that claims 2, 7 and 8 are now in condition for allowance and allowance is hereby solicited.

The applicant respectfully requests that the amended claims 3, 4, and 5 be allowed as they were only modified to change their dependence from claim 1 to allowable amended claim 2.

Claim 9 as amended recites in part "the method comprising the steps of providing a housing with a blind bore and associated opening therein..." The Office Action states that the receipt of the valve subassembly into a bore or blind opening reads on the elements of Hansen. There is no discussion, teaching or disclosures in the text or figures of Hansen that the receiving manifold has a blind bore, as is the situation in the present invention. A blind bore adds difficulty in manufacturing a valve assembly because it limits the ways to ensure that the valve is seated properly. In order to complete the Hansen valve subassembly into the manifold, a special tool is required (column 3 lines 19-26) to hold the valve in place during threading. No such tool is necessary in the present invention because the claimed structure retains its assembled status during the insertion into the blind bore, as claim 9 recites in part "frictionally engaging the shoulder in the recess."

Claim 9 also provides for "a first non-metallic valve member" and a "second non-metallic valve member" and the method of "frictionally engaging the shoulder in the recess to encase the check valve member between the first and second valve member portions." The Office Action states that the interference fit and the use of a non-metallic material is obvious in light of Rubin.

Rubin shows a single stand-alone valve that is not intended as a subassembly. The valve in Rubin has a snug-fitting end (Figure 1, element 30) configured to adapt to a mating pipe (Figure 1, element 32 and column 2, lines 14-23), not to another element of the valve body itself. The reasons for use of the PVC material for the valve body in Rubin are stated to be for inexpensive manufacturing and environmental robustness, as this valve is intended for operation in line with standard piping in irrigation equipment (column 1, lines 16-20.) There is no indication that the material choice was made to provide the frictional engagement of the valve pieces, as in the present invention. Hansen specifically calls out a durable material such as stainless steel (column 2, lines 3-7) to work in its intended hot gas environment.

Claim 9 recites a method to assemble a valve before fitting into the blind opening of the larger housing. The blind ended bore element is supported by the specification page 4, lines 7-9 and Figure 1 shows valve housing with the blind opening. The primary advantage of using an interference fit is that the valve subassembly stays together during insertion into the blind ended bore of the larger valve housing. The interference fit of the present assembly would not be possible with traditional metallic materials as disclosed in Hansen. The choice of a plastic material affords the ability to mold alignment pins into the individual components so that the check valve member, spring, and spring follower can easily be captured within the cavity formed by the mating of the two plastic valve portions together, as discussed in the specification Page 6, lines 4-20. With minimal force, the assembly is put together, ultimately creating a single sub-assembly from the individual five components as shown in Figure 2. Because of the intolerant environment and the lack of a blind bore, there is not a motivation to use the teachings of Rubin to modify a valve assembly as taught by Hansen to incorporate non-metallic parts with an interference fit. For at least these reasons it is respectfully suggested that the present invention is not taught, disclosed or suggested in the references of record nor is there motivation to combine Hansen and Rubin to arrive at the presently claimed invention. Withdrawal of the rejection and allowance of claim 9 is earnestly solicited.

The amended **Claim 10** recites in part the “step of sealingly inserting the sub-assembly into the blind bore in the housing.” Because of the friction fit, the present invention sub-assembly can now be inserted independently into the blind opening without the use of any special tools. Creating this stand alone valve sub-assembly from a non-metallic material so that it will stay together during insertion into a blind ended bore of a larger valve housing is not contemplated by either Hansen or Rubin. As such, it is respectfully suggested that claim 10 is allowable over the references of record and allowance is hereby requested.

Claim 11 recites the additional step of “advancing the first and second portions toward one another prior to the frictional engagement step.” This element shows that the valve member portions are configured such that the structure of the sub-assembly will be maintained during initial manufacture. This present claimed structure is not contemplated by the cited references, as Hansen sets out a tool requirement to maintain the valve sub-assembly during insertion into the manifold. Rubin does not teach an interference fit within the valve assembly itself. This claim 11 defines patentably over the references of record and allowance of claim 11 is respectfully requested.

Claims 1 and 6 have been amended to recite in part “a blind bore.” Withdrawal of the rejection of these claims is respectfully requested. The recitation of the blind ended bore and counter-bore are supported by the specification Page 4, lines 7-14. The blind ended bore and counter-bore are formed for acceptance of both a first and second valve assembly, which is supported by the specification, Page 4, lines 14-17. The second valve member is shown as an element of Figure 1. The valves are in pneumatic communication with each other, as shown in Figure 1, which is an established feature of multiple valve assemblies in the air brake industry. The blind ended bore and second valve assembly elements make these claims patentably distinguishable over the cited references. The applicant respectfully requests that the amended claims 1 and 6 be allowed for at least these reasons.

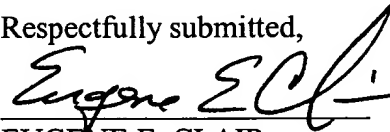
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Conclusion

In view of the foregoing, it is respectfully submitted that Claims 1 through 11 distinguish patentably over the references of record whether taken singularly or in combination.

Accordingly, the application is now in condition for allowance and allowance is respectfully requested. Please charge any deficiency or credit any overpayment in fees to this amendment to Deposit Account No. 03-0172.

Respectfully submitted,



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